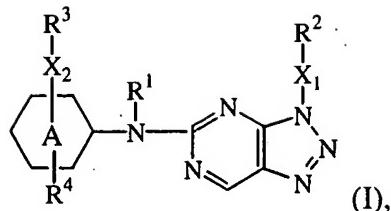
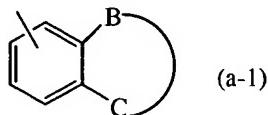


Claims

1. A compound of formula



a *N*-oxide, a pharmaceutically acceptable addition salt, a quaternary amine and a  
5 stereochemically isomeric form thereof, wherein  
ring A represents phenyl, pyridyl, pyrimidinyl, pyridazinyl or pyrazinyl;  
R<sup>1</sup> represents hydrogen; aryl; formyl; C<sub>1-6</sub>alkylcarbonyl; C<sub>1-6</sub>alkyl;  
C<sub>1-6</sub>alkyloxycarbonyl; C<sub>1-6</sub>alkyl substituted with formyl, C<sub>1-6</sub>alkylcarbonyl,  
C<sub>1-6</sub>alkyloxycarbonyl, C<sub>1-6</sub>alkylcarbonyloxy; or C<sub>1-6</sub>alkyloxyC<sub>1-6</sub>alkylcarbonyl  
10 optionally substituted with C<sub>1-6</sub>alkyloxycarbonyl;  
X<sub>1</sub> represents a direct bond; -(CH<sub>2</sub>)<sub>n3</sub>- or -(CH<sub>2</sub>)<sub>n4</sub>-X<sub>1a</sub>-X<sub>1b</sub>-;  
with n<sub>3</sub> representing an integer with value 1, 2, 3 or 4;  
with n<sub>4</sub> representing an integer with value 1 or 2;  
with X<sub>1a</sub> representing O, C(=O) or NR<sup>5</sup>; and  
15 with X<sub>1b</sub> representing a direct bond or C<sub>1-2</sub>alkyl;  
R<sup>2</sup> represents C<sub>3-7</sub>cycloalkyl; phenyl; a 4, 5, 6- or 7-membered monocyclic heterocycle  
containing at least one heteroatom selected from O, S or N; benzoxazolyl or a  
radical of formula



20 wherein -B-C- represents a bivalent radical of formula  
-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>- (b-1);  
-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>- (b-2);  
-X<sub>3</sub>-CH<sub>2</sub>-CH<sub>2</sub>-(CH<sub>2</sub>)<sub>n</sub>- (b-3);  
-X<sub>3</sub>-CH<sub>2</sub>-(CH<sub>2</sub>)<sub>n</sub>-X<sub>3</sub>- (b-4);  
25 -X<sub>3</sub>-(CH<sub>2</sub>)<sub>n</sub>-CH=CH- (b-5);  
-CH=N-X<sub>3</sub>- (b-6);  
with X<sub>3</sub> representing O or NR<sup>5</sup>;  
n representing an integer with value 0, 1, 2 or 3;  
n' representing an integer with value 0 or 1;

30 wherein said R<sup>2</sup> substituent, where possible, may optionally be substituted with at  
least one substituent selected from halo; hydroxy; C<sub>1-6</sub>alkyl optionally substituted  
with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy,

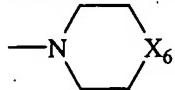
$\text{C}_{1-4}\text{alkyloxyC}_{1-4}\text{alkyloxy}$ ,  $\text{C}_{1-4}\text{alkylcarbonyl}$ ,  $\text{C}_{1-4}\text{alkyloxycarbonyl}$ ,  $\text{C}_{1-4}\text{alkylcarbonyloxy}$ ,  $\text{NR}^6\text{R}^7$ ,  $-\text{C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{NR}^5\text{-C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{S}(=\text{O})_{n1}\text{-R}^8$  or  $-\text{NR}^5\text{-S}(=\text{O})_{n1}\text{-R}^8$ ;  $\text{C}_{2-6}\text{alkenyl}$  or  $\text{C}_{2-6}\text{alkynyl}$ , each optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl,  $\text{C}_{1-4}\text{alkyloxy}$ ,  $\text{C}_{1-4}\text{alkylcarbonyl}$ ,  $\text{C}_{1-4}\text{alkyloxycarbonyl}$ ,  $\text{C}_{1-4}\text{alkylcarbonyloxy}$ ,  $\text{NR}^6\text{R}^7$ ,  $-\text{C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{NR}^5\text{-C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{S}(=\text{O})_{n1}\text{-R}^8$  or  $-\text{NR}^5\text{-S}(=\text{O})_{n1}\text{-R}^8$ ; polyhalo- $\text{C}_{1-6}\text{alkyl}$  optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl,  $\text{C}_{1-4}\text{alkyloxy}$ ,  $\text{C}_{1-4}\text{alkylcarbonyl}$ ,  $\text{C}_{1-4}\text{alkyloxycarbonyl}$ ,  $\text{C}_{1-4}\text{alkylcarbonyloxy}$ ,  $\text{NR}^6\text{R}^7$ ,  $-\text{C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{NR}^5\text{-C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{S}(=\text{O})_{n1}\text{-R}^8$  or  $-\text{NR}^5\text{-S}(=\text{O})_{n1}\text{-R}^8$ ; polyhalo- $\text{C}_{1-6}\text{alkyloxy}$  optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl,  $\text{C}_{1-4}\text{alkyloxy}$ ,  $\text{C}_{1-4}\text{alkylcarbonyl}$ ,  $\text{C}_{1-4}\text{alkyloxycarbonyl}$ ,  $\text{C}_{1-4}\text{alkylcarbonyloxy}$ ,  $\text{NR}^6\text{R}^7$ ,  $-\text{C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{NR}^5\text{-C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{S}(=\text{O})_{n1}\text{-R}^8$  or  $-\text{NR}^5\text{-S}(=\text{O})_{n1}\text{-R}^8$ ; polyhalo- $\text{C}_{1-6}\text{alkylthio}$  optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl,  $\text{C}_{1-4}\text{alkyloxy}$ ,  $\text{C}_{1-4}\text{alkylcarbonyl}$ ,  $\text{C}_{1-4}\text{alkyloxycarbonyl}$ ,  $\text{C}_{1-4}\text{alkylcarbonyloxy}$ ,  $\text{NR}^6\text{R}^7$ ,  $-\text{C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{NR}^5\text{-C}(=\text{O})\text{-NR}^6\text{R}^7$ ,  $-\text{S}(=\text{O})_{n1}\text{-R}^8$  or  $-\text{NR}^5\text{-S}(=\text{O})_{n1}\text{-R}^8$ ;  $\text{C}_{1-6}\text{alkylthio}$ ; polyhalo- $\text{C}_{1-6}\text{alkylthio}$ ;  $\text{C}_{1-6}\text{alkyloxycarbonyl}$ ;  $\text{C}_{1-6}\text{alkylcarbonyloxy}$ ;  $\text{C}_{1-6}\text{alkylcarbonyl}$ ; polyhalo- $\text{C}_{1-6}\text{alkylcarbonyl}$ ; cyano; carboxyl; aryloxy; arylthio; arylcarbonyl; aryl- $\text{C}_{1-4}\text{alkyl}$ ; aryl- $\text{C}_{1-4}\text{alkyloxy}$ ;  $\text{NR}^6\text{R}^7$ ;  $\text{C}(=\text{O})\text{NR}^6\text{R}^7$ ;  $-\text{NR}^5\text{-C}(=\text{O})\text{-NR}^6\text{R}^7$ ;  $-\text{NR}^5\text{-C}(=\text{O})\text{-R}^5$ ;  $-\text{S}(=\text{O})_{n1}\text{-R}^8$ ;  $-\text{NR}^5\text{-S}(=\text{O})_{n1}\text{-R}^8$ ;  $-\text{S-CN}$ ;  $-\text{NR}^5\text{-CN}$ ; oxazolyl optionally substituted with  $\text{C}_{1-4}\text{alkyl}$ ; imidazolyl optionally substituted with  $\text{C}_{1-4}\text{alkyl}$ ; or

$-(\text{CH}_2)_{n2}\text{-X}_4\text{-}(\text{CH}_2)_{n2}\text{N}$    $\text{X}_5$

with  $n2$  representing an integer with value 0, 1, 2, 3 or 4;  
 with  $\text{X}_4$  representing O,  $\text{NR}^5$  or a direct bond;  
 with  $\text{X}_5$  representing O,  $\text{CH}_2$ ,  $\text{CHOH}$ ,  $\text{CH-N(R}_5)_2$ ,  $\text{NR}^5$  or  $\text{N-C(=O)-C}_{1-4}\text{alkyl}$ ;  
 $\text{n2}$  represents a direct bond;  $-\text{NR}^1$ ;  $-\text{NR}^1\text{-(CH}_2\text{)}_{n3}\text{-}$ ;  $-\text{O-}$ ;  $-\text{O-(CH}_2\text{)}_{n3}\text{-}$ ;  $-\text{C(=O)-}$ ;  
 $-\text{C(=O)-}(\text{CH}_2\text{)}_{n3}\text{-}$ ;  $-\text{C(=O)-NR}^5\text{-(CH}_2\text{)}_{n3}\text{-}$ ;  $-\text{C(=S)-}$ ;  $-\text{S-}$ ;  $-\text{S(=O)}_{n1}\text{-}$ ;  $-(\text{CH}_2\text{)}_{n3}\text{-}$ ;  
 $-(\text{CH}_2\text{)}_{n4}\text{-X}_{1a}\text{-X}_{1b}\text{-}$ ;  $-\text{X}_{1a}\text{-X}_{1b}\text{-(CH}_2\text{)}_{n4}\text{-}$ ;  $-\text{S(=O)}_{n1}\text{-NR}^5\text{-(CH}_2\text{)}_{n3}\text{-NR}^5\text{-}$ ; or  
 $-\text{S(=O)}_{n1}\text{-NR}^5\text{-(CH}_2\text{)}_{n3}\text{-}$ ;  
 $\text{n3}$  represents a 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, or a 9-or 10-membered bicyclic heterocycle containing at least one heteroatom selected from O, S or N, wherein said  $\text{R}^3$  substituent, where possible, may optionally be substituted with at least one substituent selected from halo; hydroxy;  $\text{C}_{1-6}\text{alkyl}$  optionally substituted with at least one

- one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>, -C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; C<sub>2-6</sub>alkenyl or C<sub>2-6</sub>alkynyl, each optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>, -C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; polyhaloC<sub>1-6</sub>alkyl; C<sub>1-6</sub>alkyloxy optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>, -C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; polyhaloC<sub>1-6</sub>alkyloxy; C<sub>1-6</sub>alkylthio; polyhaloC<sub>1-6</sub>alkylthio; C<sub>1-6</sub>alkyloxycarbonyl; C<sub>1-6</sub>alkylcarbonyloxy; C<sub>1-6</sub>alkylcarbonyl; polyhaloC<sub>1-6</sub>alkylcarbonyl; cyano; carboxyl; NR<sup>6</sup>R<sup>7</sup>; C(=O)NR<sup>6</sup>R<sup>7</sup>; -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>; -NR<sup>5</sup>-C(=O)-R<sup>5</sup>; -S(=O)<sub>n1</sub>-R<sup>8</sup>; -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; -S-CN;
- (CH<sub>2</sub>)<sub>n2</sub>-X<sub>4</sub>-(CH<sub>2</sub>)<sub>n2</sub>-N ; and in case R<sup>3</sup> represents a saturated or a partially saturated 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, said R<sup>3</sup> may also be substituted with at least one oxo;
- 20 R<sup>4</sup> represents hydrogen; halo; hydroxy; C<sub>1-4</sub>alkyl optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>9</sup>R<sup>10</sup>, -C(=O)-NR<sup>9</sup>R<sup>10</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>9</sup>R<sup>10</sup>, -S(=O)<sub>n1</sub>-R<sup>11</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>11</sup>; C<sub>2-4</sub>alkenyl or C<sub>2-4</sub>alkynyl, each optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>9</sup>R<sup>10</sup>, -C(=O)-NR<sup>9</sup>R<sup>10</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>9</sup>R<sup>10</sup>, -S(=O)<sub>n1</sub>-R<sup>11</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>11</sup>; polyhaloC<sub>1-3</sub>alkyl; C<sub>1-4</sub>alkyloxy optionally substituted with carboxyl; polyhaloC<sub>1-3</sub>alkyloxy; C<sub>1-4</sub>alkylthio; polyhaloC<sub>1-3</sub>alkylthio; C<sub>1-4</sub>alkyloxycarbonyl; C<sub>1-4</sub>alkylcarbonyloxy; C<sub>1-4</sub>alkylcarbonyl;
- 25 polyhaloC<sub>1-4</sub>alkylcarbonyl; nitro; cyano; carboxyl; NR<sup>9</sup>R<sup>10</sup>; C(=O)NR<sup>9</sup>R<sup>10</sup>; -NR<sup>5</sup>-C(=O)-NR<sup>9</sup>R<sup>10</sup>; -NR<sup>5</sup>-C(=O)-R<sup>5</sup>; -S(=O)<sub>n1</sub>-R<sup>11</sup>; -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>11</sup>; -S-CN; or -NR<sup>5</sup>-CN;
- 30 R<sup>5</sup> represents hydrogen, C<sub>1-4</sub>alkyl or C<sub>2-4</sub>alkenyl;
- 35 R<sup>6</sup> and R<sup>7</sup> each independently represent hydrogen; cyano; C<sub>1-6</sub>alkylcarbonyl optionally substituted with C<sub>1-4</sub>alkyloxy or carboxyl; C<sub>1-6</sub>alkyloxycarbonyl; C<sub>3-7</sub>cycloalkylcarbonyl; adamantanylcarbonyl; C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyl;

C<sub>1-4</sub>alkyl substituted with C<sub>1-4</sub>alkyl-NR<sup>5</sup>; C<sub>1-6</sub>alkyl optionally substituted with at least one substituent selected from halo; hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, polyhaloC<sub>1-4</sub>alkyl, C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyloxy, NR<sup>6a</sup>R<sup>7a</sup>, C(=O)NR<sup>6a</sup>R<sup>7a</sup> or



; with X<sub>6</sub> representing O, CH<sub>2</sub>, CHO, CH-N(R<sub>5</sub>)<sub>2</sub>, NR<sup>5</sup> or

5 N-C(=O)-C<sub>1-4</sub>alkyl;

R<sup>6a</sup> and R<sup>7a</sup> each independently represent hydrogen; C<sub>1-4</sub>alkyl or C<sub>1-4</sub>alkylcarbonyl;

R<sup>8</sup> represents C<sub>1-4</sub>alkyl optionally substituted with hydroxy; polyhaloC<sub>1-4</sub>alkyl or

NR<sup>6</sup>R<sup>7</sup>;

R<sup>9</sup> and R<sup>10</sup> each independently represent hydrogen; C<sub>1-6</sub>alkyl; cyano; C<sub>1-6</sub>alkylcarbonyl;

10 C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyl; or C<sub>1-4</sub>alkyl substituted with C<sub>1-4</sub>alkyl-NR<sup>5</sup>;

R<sup>11</sup> represents C<sub>1-4</sub>alkyl or NR<sup>9</sup>R<sup>10</sup>;

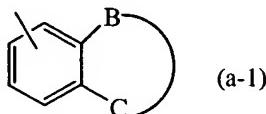
n1 represents an integer with value 1 or 2;

aryl represents phenyl or phenyl substituted with at least one substituent selected from halo, C<sub>1-6</sub>alkyl, C<sub>3-7</sub>cycloalkyl, C<sub>1-6</sub>alkyloxy, cyano, nitro, polyhaloC<sub>1-6</sub>alkyl or

15 polyhaloC<sub>1-6</sub>alkyloxy.

2. A compound according to claim 1 wherein

R<sup>2</sup> represents C<sub>3-7</sub>cycloalkyl; phenyl or a 4, 5, 6- or 7-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N; or a radical of formula



(a-1)

wherein -B-C- represents a bivalent radical of formula

-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>- (b-1);

-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>- (b-2);

25 -X<sub>3</sub>-CH<sub>2</sub>-CH<sub>2</sub>-(CH<sub>2</sub>)<sub>n</sub>- (b-3);

-X<sub>3</sub>-CH<sub>2</sub>-(CH<sub>2</sub>)<sub>n</sub>-X<sub>3</sub>- (b-4);

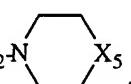
-X<sub>3</sub>-(CH<sub>2</sub>)<sub>n</sub>-CH=CH- (b-5);

with X<sub>3</sub> representing O or NR<sup>5</sup>;

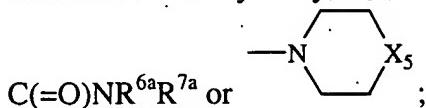
n representing an integer with value 0, 1, 2 or 3;

30 n' representing an integer with value 0 or 1;

wherein said R<sup>2</sup> substituent, where possible, may optionally be substituted with at least one substituent selected from halo; hydroxy; C<sub>1-6</sub>alkyl optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>,

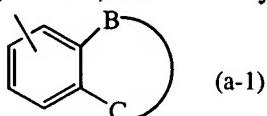
- C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; C<sub>2</sub>-alkenyl or C<sub>2</sub>-alkynyl, each optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>, -C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; polyhaloC<sub>1-6</sub>alkyl; C<sub>1-6</sub>alkyloxy optionally substituted with carboxyl; polyhaloC<sub>1-6</sub>alkyloxy; C<sub>1-6</sub>alkylthio; polyhaloC<sub>1-6</sub>alkylthio; C<sub>1-6</sub>alkyloxycarbonyl; C<sub>1-6</sub>alkylcarbonyloxy; C<sub>1-6</sub>alkylcarbonyl; polyhaloC<sub>1-6</sub>alkylcarbonyl; cyano; carboxyl; NR<sup>6</sup>R<sup>7</sup>; C(=O)NR<sup>6</sup>R<sup>7</sup>; -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>; -NR<sup>5</sup>-C(=O)-R<sup>5</sup>; -S(=O)<sub>n1</sub>-R<sup>8</sup>; -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; -S-CN; -NR<sup>5</sup>-CN; or
- (CH<sub>2</sub>)<sub>n2</sub>-X<sub>4</sub>-(CH<sub>2</sub>)<sub>n2</sub>N
- with n2 representing an integer with value 0, 1, 2, 3 or 4;  
with X<sub>4</sub> representing O, NR<sup>5</sup> or a direct bond;  
with X<sub>5</sub> representing O or NR<sup>5</sup>;
- X<sub>2</sub> represents a direct bond; -NR<sup>1</sup>-; -O-; -C(=O)-; -C(=S)-; -S-; -S(=O)<sub>n1</sub>-; -(CH<sub>2</sub>)<sub>n3</sub>-; or -  
-(CH<sub>2</sub>)<sub>n4</sub>-X<sub>1a</sub>-X<sub>1b</sub>-;
- R<sup>3</sup> represents a 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, wherein said R<sup>3</sup> substituent, where possible, may optionally be substituted with at least one substituent selected from halo; hydroxy; C<sub>1-6</sub>alkyl optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>, -C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; C<sub>2</sub>-alkenyl or C<sub>2</sub>-alkynyl, each optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkylcarbonyl, C<sub>1-4</sub>alkyloxycarbonyl, C<sub>1-4</sub>alkylcarbonyloxy, NR<sup>6</sup>R<sup>7</sup>, -C(=O)-NR<sup>6</sup>R<sup>7</sup>, -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>, -S(=O)<sub>n1</sub>-R<sup>8</sup> or -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; polyhaloC<sub>1-6</sub>alkyl; C<sub>1-6</sub>alkyloxy optionally substituted with carboxyl; polyhaloC<sub>1-6</sub>alkyloxy; C<sub>1-6</sub>alkylthio; polyhaloC<sub>1-6</sub>alkylthio; C<sub>1-6</sub>alkyloxycarbonyl; C<sub>1-6</sub>alkylcarbonyloxy; C<sub>1-6</sub>alkylcarbonyl; polyhaloC<sub>1-6</sub>alkylcarbonyl; cyano; carboxyl; NR<sup>6</sup>R<sup>7</sup>; C(=O)NR<sup>6</sup>R<sup>7</sup>; -NR<sup>5</sup>-C(=O)-NR<sup>6</sup>R<sup>7</sup>; -NR<sup>5</sup>-C(=O)-R<sup>5</sup>; -S(=O)<sub>n1</sub>-R<sup>8</sup>; -NR<sup>5</sup>-S(=O)<sub>n1</sub>-R<sup>8</sup>; -S-CN; -NR<sup>5</sup>-CN; or
- (CH<sub>2</sub>)<sub>n2</sub>-X<sub>4</sub>-(CH<sub>2</sub>)<sub>n2</sub>N
- and in case R<sup>3</sup> represents a saturated 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, said R<sup>3</sup> may also be substituted with at least one oxo;
- R<sup>5</sup> represents hydrogen or C<sub>1-4</sub>alkyl;

R<sup>6</sup> and R<sup>7</sup> each independently represent hydrogen; cyano; C<sub>1-6</sub>alkylcarbonyl; C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyl; C<sub>1-4</sub>alkyl substituted with C<sub>1-4</sub>alkyl-NR<sup>5</sup>; C<sub>1-6</sub>alkyl optionally substituted with hydroxy, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyloxy, NR<sup>6a</sup>R<sup>7a</sup>,



- 5 R<sup>8</sup> represents C<sub>1-4</sub>alkyl, polyhaloC<sub>1-4</sub>alkyl or NR<sup>6</sup>R<sup>7</sup>.

3. A compound as claimed in claim 1 wherein ring A represents phenyl; R<sup>1</sup> represents hydrogen or C<sub>1-6</sub>alkyl; X<sub>1</sub> represents a direct bond or -(CH<sub>2</sub>)<sub>n3</sub>; R<sup>2</sup> represents C<sub>3-7</sub>cycloalkyl; phenyl; a 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N; benzoxazolyl; or a radical of formula  
10



wherein -B-C- represents a bivalent radical of formula

-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>- (b-1);

-X<sub>3</sub>-CH<sub>2</sub>-(CH<sub>2</sub>)<sub>n</sub>-X<sub>3</sub>- (b-4);

-CH=N-X<sub>3</sub>- (b-6);

with X<sub>3</sub> representing O or NR<sup>5</sup>;

n representing an integer with value 1;

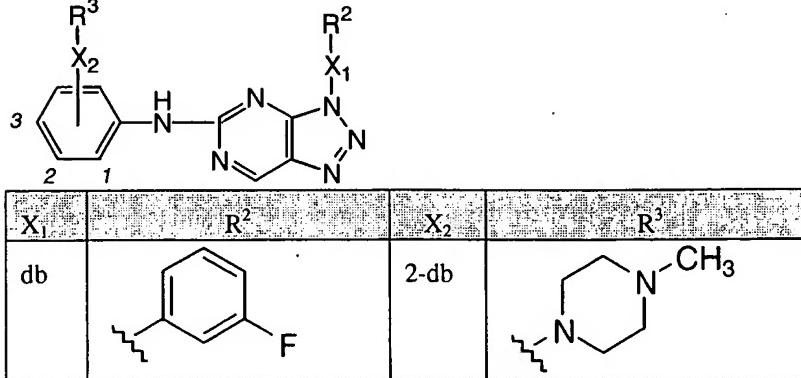
- wherein said R<sup>2</sup> substituent, where possible, may optionally be substituted with at least one substituent, in particular with 1 or 2 substituents selected from halo; C<sub>1-6</sub>alkyl  
20 optionally substituted with at least one substituent selected from hydroxy, cyano, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyloxy, NR<sup>6</sup>R<sup>7</sup> or -C(=O)-NR<sup>6</sup>R<sup>7</sup>; polyhaloC<sub>1-6</sub>alkyl; C<sub>1-6</sub>alkyloxy optionally substituted with C<sub>1-4</sub>alkyloxy; C<sub>1-6</sub>alkylthio; C<sub>1-6</sub>alkyl-oxycarbonyl; cyano; arylthio; aryloxy; arylcarbonyl; NR<sup>6</sup>R<sup>7</sup>; C(=O)NR<sup>6</sup>R<sup>7</sup>; -S(=O)<sub>n1</sub>-R<sup>8</sup>; or imidazolyl optionally substituted with C<sub>1-4</sub>alkyl;  
25 X<sub>2</sub> represents a direct bond; -NR<sup>1</sup>-; -O-(CH<sub>2</sub>)<sub>n3</sub>-; -C(=O)-; -C(=O)-NR<sup>5</sup>-(CH<sub>2</sub>)<sub>n3</sub>-; -(CH<sub>2</sub>)<sub>n3</sub>-; or -S(=O)<sub>n1</sub>-NR<sup>5</sup>-(CH<sub>2</sub>)<sub>n3</sub>-NR<sup>5</sup>-; R<sup>3</sup> represents a 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, wherein said R<sup>3</sup> substituent, where possible, may optionally be substituted with at least one substituent selected from halo; hydroxy; C<sub>1-6</sub>alkyl; or NR<sup>6</sup>R<sup>7</sup>; and in case R<sup>3</sup>  
30 represents a saturated or a partially saturated 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, said R<sup>3</sup> may also be substituted with at least one oxo; R<sup>4</sup> represents hydrogen; nitro or carboxyl; R<sup>5</sup> represents hydrogen; R<sup>6</sup> and R<sup>7</sup> each independently represent hydrogen; cyano; C<sub>1-6</sub>alkylcarbonyl optionally substituted with C<sub>1-4</sub>alkyloxy; C<sub>1-6</sub>alkyloxycarbonyl;

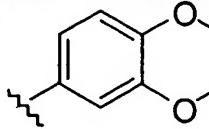
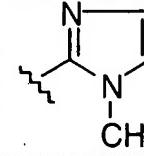
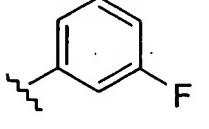
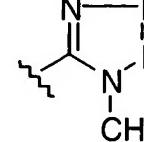
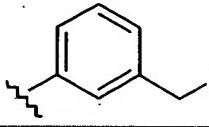
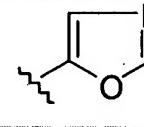
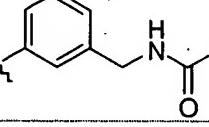
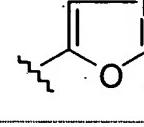
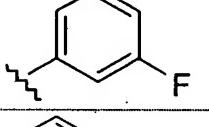
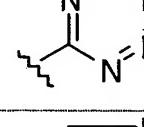
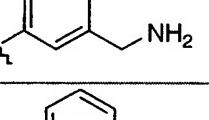
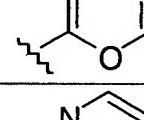
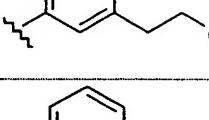
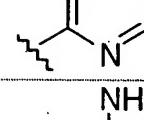
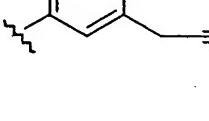
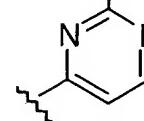
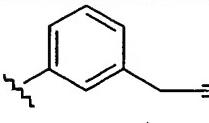
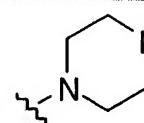
C<sub>3-7</sub>cycloalkylcarbonyl; adamantanylcarbonyl; or C<sub>1-6</sub>alkyl; R<sup>8</sup> represents NR<sup>6</sup>R<sup>7</sup>; n1 represents an integer with value 2; aryl represents phenyl.

4. A compound as claimed in any one of claims 1 to 3 wherein ring A is phenyl; R<sup>1</sup> is  
5 hydrogen; X<sub>1</sub> is a direct bond or -(CH<sub>2</sub>)<sub>n3</sub>-; R<sup>2</sup> is indanyl; 2,3-dihydro-1,4-  
benzodioxanyl; phenyl optionally being substituted with 1 or 2 substituents  
each independently being selected from C<sub>1-6</sub>alkyl which may optionally be substituted  
with hydroxy, cyano, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyloxy, NR<sup>6</sup>R<sup>7</sup> or C(=O)NR<sup>6</sup>R<sup>7</sup>,  
C<sub>1-6</sub>alkyloxy; halo; polyhaloC<sub>1-6</sub>alkyl which may optionally be substituted with  
10 hydroxy, cyano, C<sub>1-4</sub>alkyloxy, C<sub>1-4</sub>alkyloxyC<sub>1-4</sub>alkyloxy, NR<sup>6</sup>R<sup>7</sup> or C(=O)NR<sup>6</sup>R<sup>7</sup>,  
cyano; NR<sup>6</sup>R<sup>7</sup>; C(=O)NR<sup>6</sup>R<sup>7</sup>; -S(=O)<sub>n1</sub>-R<sup>8</sup>; X<sub>2</sub> is direct bond; -NR<sup>1</sup>-; -O-(CH<sub>2</sub>)<sub>n3</sub>-;  
-C(=O)-; -C(=O)-NR<sup>5</sup>-(CH<sub>2</sub>)<sub>n3</sub>-; or -(CH<sub>2</sub>)<sub>n3</sub>-; R<sup>3</sup> is tetrazolyl; piperazinyl; imidazolyl;  
oxazolyl; pyrimidinyl; thiazolyl; triazolyl; pyridyl; piperidinyl, pyrazinyl; pyrazolyl or  
morpholinyl; said rings representing R<sup>3</sup> may optionally be substituted with one  
15 substituent selected from C<sub>1-6</sub>alkyl; NR<sup>6</sup>R<sup>7</sup>; hydroxy; halo; and in case R<sup>3</sup> represents a  
saturated or a partially saturated ring system, said R<sup>3</sup> may also be substituted with at  
least one oxo; R<sup>4</sup> is hydrogen; R<sup>6</sup> and R<sup>7</sup> each independently represent hydrogen;  
cyano; C<sub>1-6</sub>alkylcarbonyl optionally substituted with C<sub>1-4</sub>alkyloxy;  
C<sub>1-6</sub>alkyloxycarbonyl; C<sub>3-7</sub>cycloalkylcarbonyl; or C<sub>1-6</sub>alkyl; R<sup>8</sup> represents NR<sup>6</sup>R<sup>7</sup>.  
20
5. A compound as claimed in any one of claims 1 to 4 wherein the R<sup>3</sup> substituent is  
linked to ring A in meta position compared to the NR<sup>1</sup> linker.  
25
6. A compound as claimed in any one of claims 1 to 4 wherein the R<sup>3</sup> substituent is  
linked to ring A in para position compared to the NR<sup>1</sup> linker.  
30
7. A compound as claimed in any one of claims 1 to 6 wherein the R<sup>3</sup> substituent is an  
optionally substituted saturated 6-membered monocyclic heterocycle containing at least  
one heteroatom selected from O, S or N.  
35
8. A compound as claimed in any one of claims 1 to 7 wherein X<sub>1</sub> represents a direct  
bond.  
9. A compound as claimed in any one of claims 1, 5 to 8 wherein R<sup>2</sup> represents  
C<sub>3-7</sub>cycloalkyl; phenyl; a 4, 5, 6- or 7-membered monocyclic heterocycle containing at  
least one heteroatom selected from O, S or N; benzoxazolyl or a radical of formula (a-  
1) wherein said R<sup>2</sup> substituent is substituted with at least one substituent selected from

$C_{1-6}$ alkyl substituted with  $NR^6R^7$ ;  $C_{2-6}$ alkenyl or  $C_{2-6}$ alkynyl, each substituted with  $NR^6R^7$ ; polyhalo $C_{1-6}$ alkyl substituted with  $NR^6R^7$ ;  $C_{1-6}$ alkyloxy substituted with  $NR^6R^7$ ; polyhalo $C_{1-6}$ alkyloxy substituted with  $NR^6R^7$ ; or  $NR^6R^7$ .

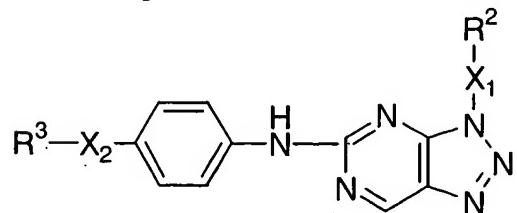
- 5    10. A compound as claimed in any one of claims 1, 5, 6, 8 or 9 wherein  $R^3$  represents a 5-or 6-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N, or a 9-or 10-membered bicyclic heterocycle containing at least one heteroatom selected from O, S or N, wherein said  $R^3$  substituent is substituted with at least one substituent selected from  $C_{1-6}$ alkyl substituted with  $NR^6R^7$ ;  $C_{2-6}$ alkenyl or  
10     $C_{2-6}$ alkynyl, each substituted with  $NR^6R^7$ ;  $C_{1-6}$ alkyloxy substituted with  $NR^6R^7$ ; or  $NR^6R^7$ .
- 15    11. A compound as claimed in any one of claims 1, 5, 6, 7, 8 or 10 wherein  $R^2$  represents  $C_{3-7}$ cycloalkyl; phenyl; a 4, 5, 6- or 7-membered monocyclic heterocycle containing at least one heteroatom selected from O, S or N; benzoxazolyl or a radical of formula (a-1), wherein said  $R^2$  substituent is substituted with at least one substituent selected from halo; polyhalo $C_{1-6}$ alkyl optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl,  $C_{1-4}$ alkyloxy,  $C_{1-4}$ alkyloxy-  
20     $C_{1-4}$ alkyloxy,  $C_{1-4}$ alkylcarbonyl,  $C_{1-4}$ alkyloxycarbonyl,  $C_{1-4}$ alkylcarbonyloxy,  $NR^6R^7$ ,  $-C(=O)-NR^6R^7$ ,  $-NR^5-C(=O)-NR^6R^7$ ,  $-S(=O)_{n1}-R^8$  or  $-NR^5-S(=O)_{n1}-R^8$ ; polyhalo-  
 $C_{1-6}$ alkyloxy optionally substituted with at least one substituent selected from hydroxy, cyano, carboxyl,  $C_{1-4}$ alkyloxy,  $C_{1-4}$ alkyloxy $C_{1-4}$ alkyloxy,  $C_{1-4}$ alkylcarbonyl,  $C_{1-4}$ alkyloxycarbonyl,  $C_{1-4}$ alkylcarbonyloxy,  $NR^6R^7$ ,  $-C(=O)-NR^6R^7$ ,  $-NR^5-C(=O)-NR^6R^7$ ,  $-S(=O)_{n1}-R^8$  or  $-NR^5-S(=O)_{n1}-R^8$ .
- 25    12. A compound as claimed in claim 1 wherein the compound is selected from



X <sub>1</sub>	R <sup>2</sup>	X <sub>2</sub>	R <sup>3</sup>
db		2-db	
db		2-db	
db		2-db	
db		2-db	
db		3-db	
db		2-db	
db		3-NH	
db		2-db	
db		3-db	

a *N*-oxide, a pharmaceutically acceptable addition salt, a quaternary amine and a stereochemically isomeric form thereof.

13. A compound as claimed in claim 1 wherein the compound is selected from



$X_1$	$R^2$	$X_2-R^3$
db		

a *N*-oxide, a pharmaceutically acceptable addition salt, a quaternary amine and a stereochemically isomeric form thereof.

- 5 14. A compound as claimed in any one of claims 1 to 13 for use as a medicine.
- 10 15. The use of a compound as defined in any one of claims 1 to 13 for the manufacture of a medicament for the prevention or the treatment of diseases mediated through GSK3.
16. The use of a compound as defined in any one of claims 1 to 13 for the manufacture of a medicament for the prevention or the treatment of bipolar disorder (in particular manic depression), diabetes, Alzheimer's disease, leukopenia, FTDP-17 (Fronto-temporal dementia associated with Parkinson's disease), cortico-basal degeneration, progressive supranuclear palsy, multiple system atrophy, Pick's disease, Niemann Pick's disease type C, Dementia Pugilistica, dementia with tangles only, dementia with
- 15

tangles and calcification, Downs syndrome, myotonic dystrophy, Parkinsonism-dementia complex of Guam, aids related dementia, Postencephalic Parkinsonism, prion diseases with tangles, subacute sclerosing panencephalitis, frontal lobe degeneration (FLD), argyrophilic grains disease, subacute sclerotizing panencephalitis (SSPE) ( late complication of viral infections in the central nervous system), inflammatory diseases, depression, cancer, dermatological disorders, neuroprotection, schizophrenia, pain.

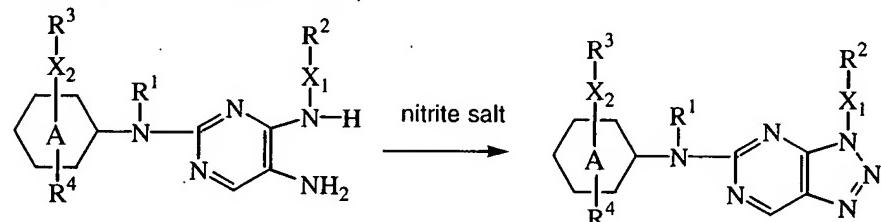
5        17. The use of a compound as claimed in claim 16 for the prevention or the treatment  
of Alzheimer's disease; diabetes; cancer; inflammatory diseases; bipolar disorder;  
10      depression; pain.

15      18. A pharmaceutical composition comprising a pharmaceutically acceptable carrier  
and as active ingredient a therapeutically effective amount of a compound as claimed in  
any one of claims 1 to 13.

19. A process for preparing a pharmaceutical composition as claimed in claim 18  
characterized in that a therapeutically effective amount of a compound as claimed in  
any one of claims 1 to 13 is intimately mixed with a pharmaceutically acceptable  
carrier.

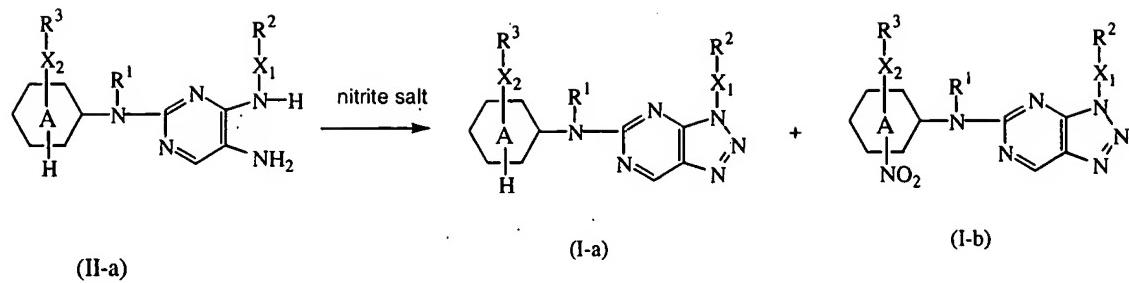
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20. A process for preparing a compound as claimed in claim 1, characterized by  
a) cyclizing an intermediate of formula (II) in the presence of a nitrite salt, a suitable  
solvent, and a suitable acid,



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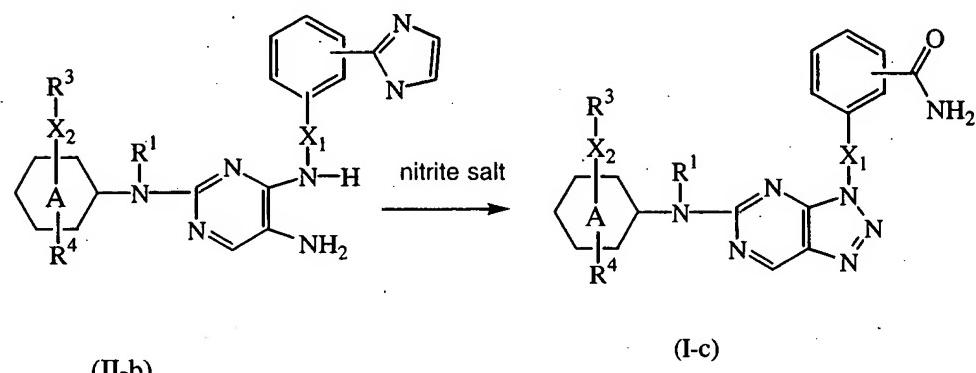
wherein ring A, R<sup>1</sup> to R<sup>4</sup>, X<sub>1</sub> and X<sub>2</sub> are as defined in claim 1;  
b) cyclizing an intermediate of formula (II-a) in the presence of a nitrite salt, a suitable  
solvent, and a suitable acid,



wherein ring A,  $\text{R}^1$  to  $\text{R}^3$ ,  $\text{X}_1$  and  $\text{X}_2$  are as defined in claim 1;

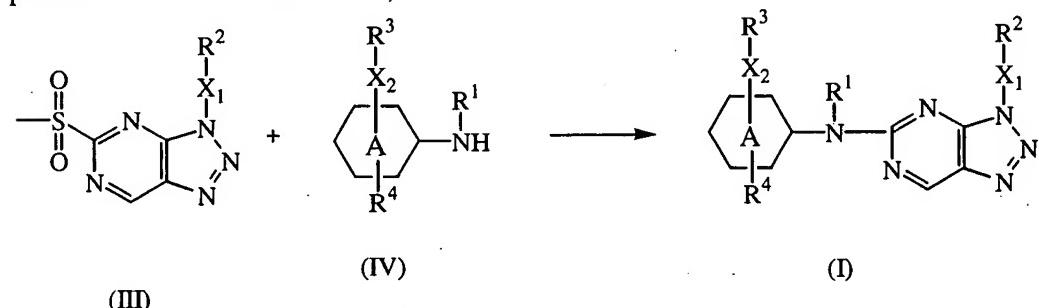
- c) cyclizing an intermediate of formula (II-b) in the presence of a nitrite salt, a suitable solvent, and a suitable acid,

5



wherein ring A,  $\text{R}^1$ ,  $\text{R}^3$  and  $\text{R}^4$ ,  $\text{X}_1$  and  $\text{X}_2$  are as defined in claim 1;

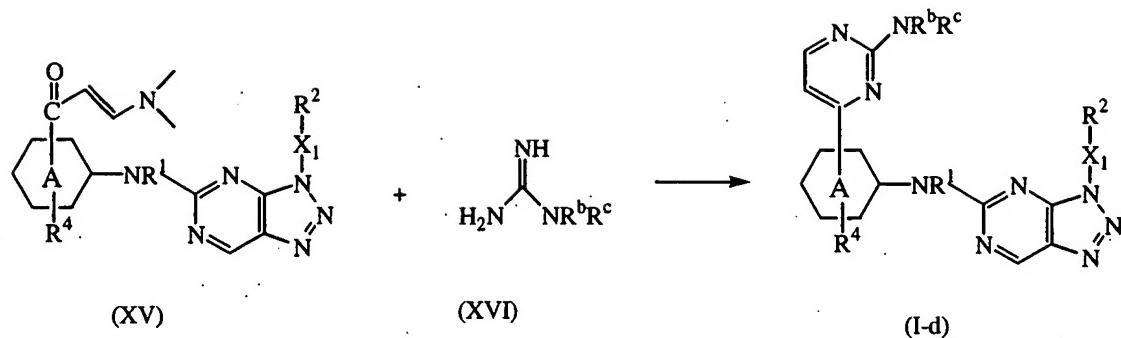
- d) reacting an intermediate of formula (III) with an intermediate of formula (IV) in the presence of a suitable solvent,



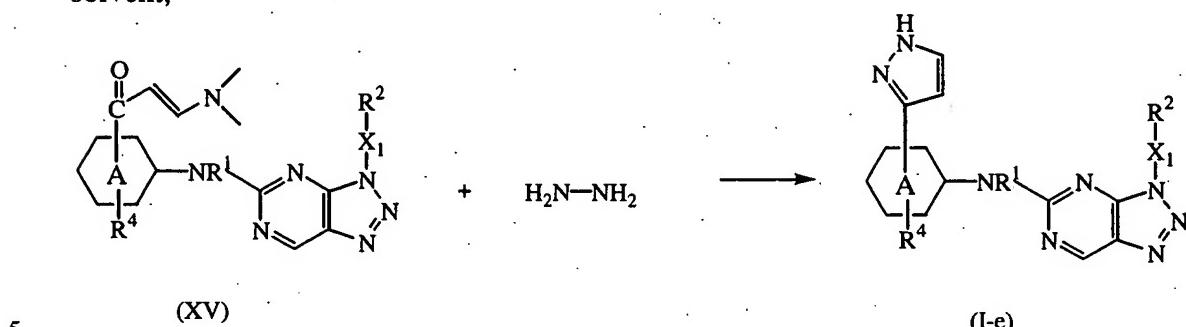
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wherein ring A,  $\text{R}^1$  to  $\text{R}^4$ ,  $\text{X}_1$  and  $\text{X}_2$  are as defined in claim 1;

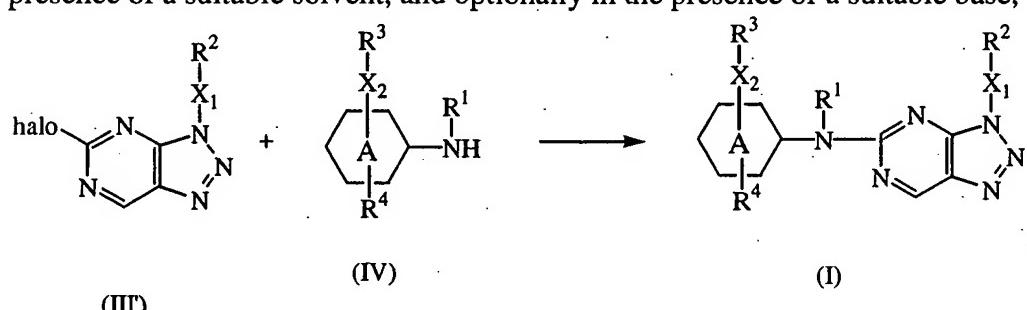
- e) reacting an intermediate of formula (XV) with an intermediate of formula (XVI), wherein  $\text{R}^b$  represents hydrogen,  $\text{C}_{1-4}\text{alkyl}$  or cyano, and  $\text{R}^c$  represents hydrogen or  $\text{C}_{1-4}\text{alkyl}$ , in the presence of a suitable solvent and a suitable salt



f) reacting an intermediate of formula (XV) with hydrazine in the presence of a suitable solvent,



g) reacting an intermediate of formula (III') with an intermediate of formula (IV) in the presence of a suitable solvent, and optionally in the presence of a suitable base,



10 wherein ring A, R<sup>1</sup> R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, X<sub>1</sub> and X<sub>2</sub> are as defined in claim 1;

or, if desired, converting compounds of formula (I) into each other following art-known transformations, and further, if desired, converting the compounds of formula (I), into a therapeutically active non-toxic acid addition salt by treatment with an acid, or into a  
 15 therapeutically active non-toxic base addition salt by treatment with a base, or conversely, converting the acid addition salt form into the free base by treatment with alkali, or converting the base addition salt into the free acid by treatment with acid; and, if desired, preparing stereochemically isomeric forms, quaternary amines or N-oxide forms thereof